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EXAMINER

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ART UNIT	PAPER NUMBER
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2175

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/729,806

Applicant(s)

STEGELMANN, ROLF GUNTER  
ERICH

Examiner

Sam Rimell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-34 is/are rejected.
- 7) ☒ Claim(s) 15-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.



**SAM RIMELL**  
**PRIMARY EXAMINER**

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14, 17-30 and 32-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Lomet (U.S. Patent 5,933,838).

Claim 1: Lomet discloses a database system (line 1 of abstract) which includes storage devices (56, 58 in FIG. 3). The cache manager in (66 in FIG. 3) is further detailed in FIG. 11, and includes a table (122) having a plurality of rows (124, 126). Each row includes a data structure (128, 130). The first row (130) contains data presenting a “before image” and the second row (128) contains data representing an “after image”. This occurs because the first row has a lower state identifier value (SID) than the second row. The lower number state identifier represents that a transaction on the object, such as a logging operation, occurred sequentially before a transaction on an object having the higher number (see col. 33, lines 56-60).

Claim 2: Each row (130, 128 in FIG. 11) includes state identifiers (“SID” in FIG. 11).

Claim 3: The state identifiers (SID) are in the table (122) of FIG. 11.

Claim 4: The first row (130) and the second row (128) have a row identifier (object ID). The first and second rows are associated, once being a successor object, the other being a predecessor object.

Claim 5: The rows contain state identifiers (SID) to indicate “before” and “after” states as explained in claim 1.

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Claim 6: Data modification operations can be performed, such as read and write operations (FIG. 11). The operations are requests, such as a request to read data or a request to write data. As stated with respect to claim 1, the first row contains data representing a “before” image. Additional rows, such as a third row, may be provided having the same “before” image, as indicated by the lower SID value of “1”.

Claim 7: Col. 33, lines 56-60 indicate that the state of each row corresponds to a log number recorded in a log, which is separate from the table (120). The recording of this data in a log is considered to be a transitioning of the data, based on a command to manipulate the data by recording it in the log.

Claims 8-9: Any loading of data into the rows (128, 130) is considered to be a return of data to those rows. The processing system which loads the data into these rows is therefore the module which returns the data. Data can be returned to the rows during a normal read request, which would cause the SID to be altered. If an abort occurs, data can be returned to the rows from the log record (col. 33, lines 27-29).

Claim 10: The processor includes programming to mark the first row with a state identification. This programming reads as a module which marks the first row as a current image.

Claim 11: The processor includes programming which can flush the data from the rows of the table. (col. 33, line 28). The flushing can occur in response to an abort condition, such as after the abort condition has occurred and recovery has been completed.

Claim 12: The table (122 in FIG. 11) includes row identifiers (object ID) associated with the first and second rows, a first state identifier (SID) associated with the first row and a second state identifier (SID) associated with the second row.

Claim 13: The table (120) further includes a mutation identifier (dirty flag). The intended usage of the flag (i.e. what the flag indicates) does not limit the structure of the system and thus carries no patentable weight. Each of the mutation identifiers are associated with the row identifiers (object ID).

Claim 14: The mutation identifier (dirty flag) is a bit which is changed by processing operations. The bit changes between "1" and "0".

Claim 17: Although it is not understood what is meant by the phrase "return a row to return", as best as can be understood, this claim is suggesting some return of data to the rows. As stated with respect to claims 8 and 9 above, any loading of data to the rows (128, 130) is considered to be a return of data to those rows.

Claim 18: The presence of even one mutation identifier (dirty flag) is considered to be a "list" of such identifiers. This interpretation is confirmed by the claim, which defines the "list" as having as few as one item. The intended usage of the flag to indicate active operations does not limit the structure of the system and thus carries no patentable weight.

Claim 19: The presence of even one mutation identifier (dirty flag) is considered to be a "list" of such identifiers. The intended usage of the flag to indicate an abort operation does not limit the structure of the system and thus carries no patentable weight.

Claim 20: FIG. 11 illustrates the storage of objects (128 and 130) in the rows (124) and (126) respectively. In response to processing operations, such as logging operations, a state

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identifier (SID) is assigned to each object (128, 130). The state identifiers are indicators of a sequence in the log (col. 33, lines 56-60). Thus, a lower SID number represents that a transaction on the object occurred before the transaction on the object having the higher SID. Accordingly, the object with the lower SID is the “before” image and the object with the higher SID is the “after” image.

Claim 21: The state identifiers (SID) are associated with each row (122) and (126) and indicate whether the row contains the “before” image data or the “after” image data.

Claim 22: Any loading of data to the rows is readable as a return of data to that row under a condition.

Claim 23: See remarks for claims 8-9.

Claim 24: See remarks for claim 10.

Claim 25: Claim 25 presents two optional operations, only one of which limits the claims. See remarks for claim 11 in reference to the deleting operation.

Claim 26: The identification of a state identifier to the second row (128) is considered to be a marking of that row.

Claim 27: Claim 27 presents two optional operations, only one of which limits the claims. See remarks for claim 11 in reference to deleting rows.

Claims 28-29: See remarks for claim 1.

Claim 30: A relational table is a standard term in the art referring to a structure of data having rows and columns. Since the data structure (122) has at least one row (such as row 128) and at least one column, it meets the definition of being a relational table. An additional

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consideration is that the structure (122) is referred to as a "table" (col. 18, line 34). The reference to a table implies the presence of rows and columns.

Claim 32: Each of the data in table (122) is stored in rows.

Claim 33: See remarks for claim 32.

Claim 34: Claim 34 only recites a series of method steps derived from the usage of the claimed article. Since the method steps are not actual structures, they do not limit the physical structure of the article and thus carry no patentable weight.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lomet (U.S. Patent 5,933,838).

Claim 31: FIG.11 of Lomet illustrates one set of storage elements (122) storing a table and one processor (54) which processes the data associated with the table. Lomet differs from claim 33 in that it does not disclose a duplicate system, having a duplicate processor (54) and duplicate storage elements (122). Such a duplicate system would run in parallel with the system of FIG. 3. It would have been obvious to one of ordinary skill in the art to provide a duplicate processor (154) and duplicate storage elements for storing the table (122) as an obvious duplication of parts (MPEP 2144.04, Section B).

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Claims 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Remarks

Applicant's arguments and amendments have been considered.

Applicant's arguments and amendments have overcome the previous grounds of rejection under 35 USC 112.

With respect to claim 1, applicant argues that the reference to Lomet does not disclose (In FIG. 11) a "before" image and an "after" image of the exact same data object, noting that the objects (128) and (130) are completely different types of data objects, thus are not "before" and "after" images of the exact same object. Examiner agrees with this assessment, but finds that this requirement is not provided in the claims. Claim 1, for example, only requires a "before" image of some unidentified data and an "after" image of some unidentified data. There is no requirement that the "before" and "after" images be images of the exact same piece of data. Accordingly, Examiner maintains that while object (128) and object (130) may be different types of objects, they do meet the claimed requirement of being "data" which is in different states, as evidenced by their differing state identification numbers (SIDs).

With respect to claim 7, applicant argues that the Lomet reference does not disclose the transitioning of row states in response to a data manipulation command. However, col. 33, lines 56-60 describe a logging operation which leads to the creation of the state ID (SID) number which is illustrated in FIG. 11. Examiner maintains that the creation of the SID is the



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transitioning function and the manipulation command is the logging operation. This finding by the Examiner is explicitly recited in claim 7.

Applicant's remaining arguments are general assertions of patentability without consideration of the examiner's rationale. For example, applicant's arguments with respect to claim 13 allege that Lomet lacks a mutation identifier even though the examiner provides a specific discussion of exactly what is considered the mutation identifier. In another example, applicant argues for claims 18 and 19 that Lomet did not disclose identifiers having certain specific functions, without considering the Examiner's argument that the functions were intended usages having no patentable weight.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Sam Rimell at telephone number (703) 306-5626.

  
**SAM RIMELL**  
**PRIMARY EXAMINER**